

STANDPOINT

by

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Regarding: Competition for academic position “ASSOCIATE PROFESSOR” in the area of higher education 7, „Healthcare and sports“, professional field 7.1. „Medicine“, scientific specialty "Cardiology", to the Cardiology section- National Hospital of Cardiology, announced in SG, issue 45/28.01.2021 according Order № 309/ 22.07.2021 r.

The statement has been prepared in accordance with the Academic Staff Development Law (ASDL), the Regulations for Application of the ASDL (RAASDL) and the Rules for the Conditions and Procedures for Acquisition of Academic Degrees and Occupation of Academic Positions in the National Hospital of Cardiology. It complies with the national scientometric requirements according to the ASDL. All necessary materials and procedures for the competition have been provided.

The only candidate participating in the competition is d-r Elena Svetlozarova Dimitrova, MD.

Professional Development:

D-r Elena Svetlozarova Dimitrova graduated in medicine in 2008. She began his professional career in 2011 as a resident in Cardiology Department, UMHAT „St. Anna“- Sofia. In 2014 she was appointed at Department of Intensive Care, National Hospital of Cardiology- Sofia. In the same hospital she has had position of senior assistant since 2019.

He has acquired specialties in "Cardiology" and „Echocardiography- fundamental level“.

In 2017 he has received his PhD for a dissertation work titled "Prospective follow-up of patients with pulmonary arterial hypertension and assessment of the effect of the application of specific therapy on the functional class and clinical course of the disease following a specific protocol for follow-up and escalation of therapy"

She has specialized in Otwock, Poland.

She has taught medical students and residents.

She is a member of the Bulgarian Society of Cardiology, the European Society of Cardiology, the Society of the Bulgarian Medical Union.

She has participated as a researcher in a number of clinical trials: PLATO, CURRENT, SOLID, MAESTRO, ACCELERATE, BALKAN-AF REGISTRY, AEGIS-I, AEGIS-II.

She speaks English, French and German.

Assessment of the scientific works on the overall academic development:

In the competition the candidate has presented: 30 scientific publications, 21 posters, attendances at congresses and conferences. Published abroad are 4 articles, 18 abstracts of congresses. Dr. Dimitrova is the first author in 29 of the presented scientific works.

The presented scientific papers can be grouped as follows:

- „Pulmonary hypertension and pulmonary embolism“: 11 publications and 7 abstracts (1 of them is published abroad). In this direction is the PhD thesis of Dr. Dimitrova.
- „Coronary artery disease and acute coronary syndromes“: 4 publications and 17 abstracts (6 of them is published abroad).
- „Atrial fibrillation, electroshock therapy and cardiostimulation“: 4 publications and 6 abstracts (5 of them is published abroad). Part of them are dedicated to data from Atrial fibrillation register, including BALKAN-AF.
- „Pharmacotherapy“: 4 publications.
- „Rare clinical cases and other“: 5 publication.

The candidate's scientific publications are cited in Scopus 43 times, in Web of science - 43 times, 15 times in Bulgarian magazines.

Scientific contributions:

Scientific contributions can be grouped thematically as follows:

- Pulmonary hypertension and pulmonary thromboembolism: The candidate participates in the creation, implementation and validation of a specific long-term pulmonary hypertension patients follow-up algorithm at St. Anna University Hospital, Sofia. Dr. Elena Dimitrova participates in the summarization and analysis on data related to long-term follow-up, mortality and it also includes direct comparisons with the results of the major world registries in patients with pulmonary arterial hypertension. In this regard, the prognostic value of the main clinical, laboratory and instrumental indicators that are routinely used in the assessment of patients with pulmonary arterial hypertension, is considered. Moreover, the application of a comprehensive algorithm for diagnosis and long-term follow-up of patients with pulmonary arterial hypertension is evaluated following a specific protocol with stepwise escalation of therapy. For

the first time in Bulgaria, a long-term follow-up with mortality analysis and analysis on the effect of the specific therapy in patients with pulmonary arterial hypertension were performed.

A special contribution is the presentation of two own clinical cases of pulmonary thrombendarterectomy with different evolution, treated jointly with one of the European centres with the greatest experience in this field AKH Wien. Of particular interest is the published rare clinical case of a patient with left coronary artery compression in concomitant high-grade pulmonary arterial hypertension, as well as clinical cases of patients with pulmonary arterial hypertension and congenital heart malformation.

The detailed and up-to-date review of the characteristics and place of application of various biomarkers in patients with pulmonary thromboembolism and pulmonary hypertension was made, as well as the reviews of innovations and evolution of some concepts of the right ventricle and pulmonary circulation, genetics, hemodynamic definition, classification, diagnosis, risk stratification and therapeutic algorithm, pulmonary hypertension with underlying chronic lung disease and in the condition of antitumor therapy.

The author was involved in the development of a new non-invasive indicator for risk predicting of nosocomial mortality in patients with moderate and high risk pulmonary thromboembolism.

- Coronary artery disease and acute coronary syndrome: Dr. Dimitrova participated in a study on the associations of multifocal atherosclerosis with some gens polymorphisms by PCR-based genotyping of angiotensin I / D), eNOS G894T, endothelin-1 138A I / D and matrix metalloproteinase-3 5A / 6A (200 patients with invasively proven coronary artery disease) and found a high incidence (29.5%) of multifocal atherosclerosis in patients with coronary artery disease and the association with DD genotype of ACE and II genotype of ET-1.

A contribution in the field is the analysis of the continuing cardiovascular risk after acute coronary syndrome with an emphasis on the place of long-term antiplatelet therapy after the 12th month of percutaneous coronary intervention.

In a series of publications and abstracts based on own data from MHAT "National Cardiology Hospital" an analysis of the prognostic role of previous anaemia in patients with acute myocardial infarction with and without ST-elevation as an independent predictor of complicated infarction and increased nosocomial mortality was made. The prognostic role of anaemia, inflammatory markers and blood glucose in acute myocardial infarction has been studied. It has been shown that the inflammatory status in the admission of patients with acute ST-elevation myocardial infarction treated with percutaneous coronary intervention is an

independent predictor of in-hospital mortality, and patients with the most pronounced leukocyte count and hs-CRP level have a 5-fold higher risk of death.

Infarct size and left ventricular dysfunction in acute ST-elevation myocardial infarction have been shown to be independent predictors of the development of acute heart failure as a complication, regardless of reperfusion treatment. In addition, acute heart failure is associated with significantly higher in-hospital mortality. The prognosis is worse in elderly, especially elderly women, with persistent ST-elevation myocardial infarction, than in younger patients.

The direct comparison in the Bulgarian population of the risk profile of patients with myocardial infarction with and without ST-elevation was made for the first time. Comparable frequencies of most risk factors were established. At the same time, patients with myocardial infarction without ST-elevation have better control of risk factors and prognostic biomarkers. The frequency and prognostic value of chronic total occlusion (CTO) in patients with acute MI with and without ST-elevation were additionally analysed. It was found that the presence of CTO in acute myocardial infarction with ST-elevation significantly worsens the long-term prognosis regardless of other coronary anatomy and its use for additional risk stratification is discussed. However, in patients with acute myocardial infarction without ST-elevation, it appears that the presence of CTO does not affect the prognosis.

The valuable and up-to-date analysis of the impact of the first wave of the COVID-19 pandemic and the restrictive measures on myocardial infarction hospitalizations and the comparison with the data from Europe and the USA were made.

- Atrial fibrillation, electroshock therapy and pacing: The author participated in the one-of-a-kind register of patients with atrial fibrillation from the Balkan region BALKAN-AF, which presents results from real clinical practice concerning the therapeutic strategy and in particular the use of anticoagulant therapy in patients with atrial fibrillation from the Balkan region.

Dr. Elena Dimitrova also participates in a registry for patients with atrial fibrillation / flutter undergoing elective synchronized electrocardioversion. A series of publications present real data on the efficacy and safety of a non-escalating energy protocol compared to standard atrial fibrillation and flutter cardioversion protocols with increasing shock energy at each subsequent stage, as well as an individualized electrocardioversion protocol according the patient's body surface. An overview of the application of truncated biphasic truncated exponential pulses for electrocardioversion of atrial fibrillation / flutter. A direct comparison between the efficiency at different energies of the pulse was made on the basis of data from

MHAT "National Cardiology Hospital" and high frequency of procedural success and excellent safety profile was established with the studied biphasic pulses.

An analysis of the risk profile and the frequency of the various risk factors among a real population of patients undergoing elective synchronized electrocardioversion was performed, comparing two time periods. There was a change in the frequency of risk factors for atrial fibrillation in male patients and a significant increase in the proportion of patients with high cardiovascular risk in the second period in both sexes.

A series of patients with implanted permanent pacemaker due to recurrence of intraventricular obstruction after alcoholic septal ablation due to hypertrophic obstructive cardiomyopathy is presented.

- Pharmacotherapy: Dr. Dimitrova makes a detailed and practice-oriented literature review concerning the use of clopidogrel in various clinical indications, including as part of triple antithrombotic therapy, as well as its comparison with the newer potent antiplatelet agents prasugrel and ticagrelor. In addition to that she reviewed the problem of clopidogrel resistance and concept for de-escalation of antiplatelet therapy. Reviews of the use of the endothelin-receptor antagonist ambrisentan in pulmonary arterial hypertension and the use of colchicine in the treatment of acute coronary syndrome have also been performed.

- Rare clinical cases and others: A rare clinical case of severe metformin-associated lactic acidosis complicated by shock, acute renal failure, vision loss and subsequent pulmonary embolism episode has been reported. Rare clinical cases of myxedema coma complicated by cardiac arrest and status epilepticus, chronic type B aortic dissection with the formation of a giant aneurysm and rupture of the false lumen and heparin-induced thrombocytopenia in a patient with acute myocardial infarction and cancer has been reported too.

A detailed literature review of orthostatic hypotension has also been performed.

Teaching:

Dr. Dimitrova teaching activity exceeds 250 hours per year for the last 5 years. She teaches and actively participates in the training of students, specialists in cardiology and resident doctors.

Professional assessment:

Dr. Elena Dimitrova is well trained cardiologist with a large clinical experience. She applies the whole range of non-invasive diagnostic methods in daily clinical practice.

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Conclusion:

The candidate Elena Dimitrova covers the qualitative and quantitative requirements for the research, teaching and diagnostic-medical activity for the scientific title "Associate Professor".

I have no remarks on the candidate's participation in the competition.

This gives me reason to recommend to the honourable members of the Scientific jury to vote positively for Dr. Elena Svetlozarova Dimitrova to be awarded the academic position "Associate Professor" in the area of higher education 7, „Healthcare and sports“, professional field 7.1. „Medicine“, scientific specialty "Cardiology", to the Cardiology section- National Hospital of Cardiology.

Signature:

(Assoc. Prof. Liliya Davidkova Demirevska-Mihaylova, MD, PhD)

